



**STATE OF MONTANA
MONTANA DEPARTMENT OF TRANSPORTATION
JOB PROFILE**



Update



Formal Review

Date Submitted 10/18/10

SECTION I - Identification

Working Title:

Computer Systems Analyst

Department:

Transportation

Job Code Number:

151516

Division & Bureau:

Engineering/Construction Administration
Services Bureau

Job Code Title:

Computer Systems Analyst

Section & Unit:

Construction Systems Section

Pay Band:

6

Work Address:

2701 Prospect Ave.
Helena, MT 59601

Position Number:

40056, 46018, 40089, 80017, 80011

Phone:

(406) 444-vacant



FLSA Exempt



FLSA Non-Exempt



Non-Union



MPEA



Blue Collar

Profile Completed By:

Lisa Durbin

Work Phone:

(406) 444-0453

Work Unit Mission Statement or Functional Description:

The Construction Administration Services Bureau's Construction Systems Section performs all functions relative to the development, management and support of computer systems used for construction contract administration. These computer systems are used by the Construction Administration Services Bureau, Contract Plans Bureau, Construction Engineering Services Bureau, Materials Bureau, construction personnel in the five districts, as well as other areas within headquarters such as Internal Audit, Accounting and Civil Rights. The Construction Systems Section also provides general user support for other computer systems used by construction personnel.

Describe the Job's Overall Purpose:

This position is a Computer Systems Analyst for the Construction Administration Services Bureau, and is responsible for analysis, design, coding, testing, implementation, maintenance, and training activities for agency computerized information and reporting systems; conducting hardware/software evaluations and troubleshooting, server and client software upgrades and database upgrades; providing user

support; and conducting special studies. This includes performing detailed analysis and evaluation of information processing needs and objectives of users to determine the need for new systems or modifications to existing systems; designing system applications to meet user needs and to ensure efficient use of department resources and compliance with agency information system guidelines; project management; system testing and implementation; upgrades; training users; and evaluating new software/technology. The position reports to the Construction Systems Section Supervisor and does not directly supervise other agency personnel.

SECTION II - Major Duties or Responsibilities

This section should be a clear concise statement of the position's major duties and the approximate percent of work time for each duty

% of Time

A. SYSTEM DEVELOPMENT AND ADMINISTRATION

50%

Evaluates system and user needs; plans short and long-term system development and maintenance activities; develops and implements as-built system modifications and develops new applications to enhance system performance and functionality in compliance with established agency and state information systems standards. The position is responsible for administering and supporting construction administration systems and AASHTO system users (including clients in other divisions and districts).

1. Evaluates user processes, objectives, and environments to establish short and long-range plans for the installation, implementation and maintenance of all construction contract administration and AASHTO-related systems (including, but not limited to the Trns*port SiteManager construction and materials management system, CRLMS, Estimator, Expedite, the PES/LAS letting and award systems, BAMS/DSS bid analysis software, and related system components). This involves detailed analysis and evaluation of agency business processes, as-built system specifications, and applicable policies and procedures; consultation with users and management; and research and review of technical documentation to determine viable solutions as well as site management.
2. Develops specifications to provide viable solutions and alternatives to unique user and system needs. Evaluates the effects of various alternatives on existing system components, other business processes, and agency-wide staff to ensure that automated solutions are compatible, efficient, and cost-effective. Explains and justifies project requirements and alternatives to involved or affected agency staff, guides and directs meetings with users to explore available options for meeting objectives, and negotiates changes to proposed systems and/or business processes as necessary to integrate essential system and business requirements.
3. Translates design specifications into computer language programs and command files and modifies existing application systems by altering code and developing additional programs to reflect user requests and/or system requirements. Provides quality control throughout the design processes, monitors project progress and resource requirements, oversees testing and implementation procedures, and directly resolves complex technical problems.
4. Develops prototypes, simulations, and models that demonstrate what various systems will look like and how they will function. Presents prototypes to users and information systems specialists to explain proposed system designs, solicit and evaluate feedback regarding functions and operations, and identify and resolve problems.
5. Determines the most effective method of acquiring data or establishing links to new data sources and secure access. This requires the assessment of interrelationships between

available databases and data sources and users' intended use of the data. Identifies approaches for combining information from multiple data sources to enhance the utility and value of the information (i.e., adding value through data integration).

6. Coordinates and oversees system testing procedures to evaluate the performance of integrated system components. This involves developing test scripts, performance standards and procedures; guiding and directing end-user tests; monitoring and evaluating results; and determining necessary modifications. System testing includes assessment of system performance within the existing user environment, including connectivity and integration with agency-wide systems, security and access, and system functions and procedures.
7. Coordinates systems implementation to ensure the effective integration of new or modified system components with the agency's decentralized system environment, including Helena, District, and Area offices. Plans and determines sequences, timelines, and staff roles to ensure effective and efficient migration of data, monitors compliance with applicable rules and statutes, minimizes user disruption, and assesses and resolves technical or procedural problems. Coordinates with Information Services Division Staff as necessary to ensure compatibility and compliance.
8. Develops and implements system security strategies, policies, and procedures for the Trns*port software to ensure appropriate system access by authorized users and protects the integrity of stored data against system failures, viruses, security breaches, and other problems. This involves assessing changing user access needs and security requirements, new methods and technologies, and changing system capabilities and limitations. Establishes restricted user access or other measures to mitigate immediate security concerns. Monitors and recovers from system failures as necessary.
9. Coordinates and oversees the effective and efficient migration of data between existing and new systems. Coordinates evaluations of data integrity, parallel testing, compatibility, and related issues to determine the impacts of conversion on existing data and modifies system implementation plans accordingly.
10. Plans, installs, trains, integrates, and manages upgrades/installs as they come out when AASHTO has major upgrades and decides how it will impact users; client vs. server upgrades and rollouts while providing customer continuity of service.
11. Plans and performs server upgrades, enhancements, maintenance, and support including system upgrades to new versions, improving system functionality through enhancements, and customizing systems functions to meet unique AASHTO and Engineering Division client needs.
12. Manages MDT engineering data to ensure it is useful, accessible, current, and is consistent with, and linked to, other resource databases and information resources. Evaluates existing and proposed data structures of information from a variety of agencies (e.g., existing databases and networks), determines core data needs, and establishes and communicates required fields and data structures to develop a common data source to facilitate access to data.
13. Designs and implements custom reports according to specific information requests from clients. Evaluates, accesses, manipulates, and retrieves information through the design of new query tools and other system functions or modification of existing scripts.

14. Monitors and assesses ongoing system resource and performance standards for the Trns*port software to determine usage trends, identify performance deficiencies, and anticipate the need for additional operational resources. Conducts need assessments as warranted and proposes solutions according to changing time, cost, and performance parameters.
15. Develops and implements common procedures, policies, and data definitions for new or modified systems to ensure the accuracy and integrity of system functions and to improve and streamline agency business processes.

B. ANALYSIS, TRAINING AND TECHNICAL ASSISTANCE **30%**

Provides advanced data analysis, user training, and technical assistance for all Construction Administration Services Bureau, Contract Plans Bureau, Construction Engineering Services Bureau, Materials Bureau and AASHTO system users (including clients in other divisions and districts) on information system functions and operations.

1. Manages the flow of data related to construction contract administration and materials management to ensure the effective migration of data from project managers, Districts, and other sources into centralized system databases. This involves developing and establishing procedures for collecting, transferring, and analyzing system data to be used for project planning and analysis.
2. Actively monitors and continually evaluates new technologies, system management strategies, trends, and other issues related to system development, administration, and troubleshooting to maintain a high level of professional and technical expertise, anticipate future technological needs, and determine how new methods and technologies may enhance future system development and maintenance activities. Researches and integrates appropriate new information into management plans.
3. Develops and delivers training programs on system functions and operations to ensure the proficiency and competency of users. This involves developing training curricula based upon assessment of user training needs, new and modified system operations, new procedures and technologies, and other issues. Delivers training to user groups or coordinates and oversees training provided by other Department staff, information systems specialists, vendors, and others.
4. Coordinates and performs the development of technical documentation to provide accurate and complete information and data related to system design, user training, technical programming, database models and related diagrams, and other system specifications. Establishes policies, procedures, and documentation requirements for individual projects to ensure that system design, testing, implementation, and training activities are appropriately recorded.
5. Responds to advanced technical problems referred by agency management or other users regarding microcomputer, hardware, peripheral devices, network, mainframe, and software problems. Resolves user problems by applying diagnostic tools and methods to isolate problems; analyzing hardware and software configurations, network components, and communication issues; and developing solutions to correct problems.
6. Participates in interstate and national conferences and committees to exchange information and advice related to system development strategies, refinements, and ongoing assessments.

C. PROJECT MANAGEMENT

15%

Acts as a project manager, technical lead, or individual contributor, as assigned, in the development, programming, and release of MDT and AASHTO-specific information systems, databases, and related systems and applications.

1. Evaluates project requests and performs requirement analysis and system definition to develop, enhance, or modify database applications and systems. Identifies project requirements and allocated resources (e.g., costs, staff time, resources, etc.), determines which issues are most critical to project feasibility, and determines how to prioritize and allocate project resources. Assesses existing system resources and applications to determine what can be used, determine internal and external software and hardware coordination needs, and assess available external resources.
2. Plans the tasks necessary to provide requested services by analyzing the request, providing recommendations to the section supervisor, following system development life cycle methods, and applying knowledge and expertise. Estimates personnel and computer resource costs to provide service using knowledge and experience gained on completed projects. Ensures that work is completed according to commitment, plan, standards, guidelines, specifications, schedule, and budget. Provides timeline estimates and schedules for application development and project-related tasks. Provides status reports on development activities and milestones to the supervisor and clients on a regular basis and as requested.
3. Coordinates and leads systems projects to develop and implement systems in a cost effective and timely manner. This includes planning, directing, and coordinating information systems and documentation standards; monitoring project schedules; writing implementation and backup plans; and coordinating with other members of the project team to ensure project steps are completed efficiently and effectively.
4. Provides professional, analytical and technical guidance to other project team members.

D. OTHER DUTIES AS ASSIGNED:

05%

Performs a variety of other duties as assigned by supervisors to support ongoing system development, administration, and maintenance goals and objectives. This includes directing special projects, attending ongoing training and education, and performing a variety of other duties as assigned.

The following duties and/or specific tasks listed under section II above are considered "essential functions" because they require specialized expertise and skill and are the primary reasons the job exists (they must be performed by this position with or without accommodations):

Duties A – System Development and Administration; B – Analysis, Training and Technical Assistance; and C – Project Management are considered essential functions because they require specialized expertise and are the reasons the job exists.

The following mental and physical demands are associated with these essential functions:

PHYSICAL

- Light lifting (less than 10 lbs.)
- Carry light items (papers, books, small parts).

- Remaining seated for extended periods of time, with occasional walking; standing; bending. Travel within the state to personnel locations, and out of state travel by airline to national conferences and meetings.
- Operating a personal computer.

MENTAL

- Communicate in writing, in person and over the phone.
- Ability to multi-task.
- Making decisions in a timely manner so as to not have a negative effect on construction operations.
- Demands for accuracy in all aspects of work.
- Ability to meet inflexible deadlines.
- Complex mathematics including statistical analysis.
- Comparing data.
- Compiling information, Analyzing, Coordinating, Synthesizing, Negotiating, Instructing

Does this position supervise others? ☐ Yes ☒ No

Attach an Organizational Chart.

SECTION III - Minimum Qualifications - List minimum requirements for the first day of work.

Critical knowledge and skills required for this position:

KNOWLEDGE:

The position requires advanced knowledge of the principles and practices of computer science. This includes knowledge of database, web, network and Internet-based systems and applications; programming languages, highway engineering data requirements; efficient and effective database design; structured information systems, documentation, implementation and upgrading, maintenance, and security related functions; large-scale computer systems and related equipment; networking and communication protocols; database administration and networking standards; operating systems administration; information processing; communication networks; hardware and equipment planning and implementation; performance monitoring; compliance auditing; disaster recovery; systems analysis, design, testing, and documentation techniques and procedures; customer service standards; data management products; data structures and interrelationships; network capabilities; computer operating systems, equipment, and software; databases; data management tools; website design and information architecture; web, database, and network development; code format and commenting practices; and user and application security (both local area network and internet). The position also requires knowledge of project planning and management; budgeting; research methods and techniques; electronic information management; and technical writing for documentation.

SKILLS:

The position requires skill in the operation of a variety of information technology equipment; file management and directory organization; project management and organization; isolating and resolving advanced technical problems; team leadership; communicating well with people of varied technical levels; managing multiple tasks and workflow; developing project plans; establishing project goals, timelines, and standards; and strong basic programmer skills. This position requires skill in programming in any or all of the following: C/C++, SAS, Visual Basic, PowerBuilder, PL/SQL, SQL, SQL Plus, and Oracle Forms and Reports (version 10 or higher).

Behaviors required to perform these duties:

See MDT Core Behaviors

Education:

Check the one box indicating minimum education requirements for this position for a new employee the first day of work:

- | | |
|---|--|
| <input type="checkbox"/> No education required | <input type="checkbox"/> Related AAS/2-years college/vocational training |
| <input type="checkbox"/> High school diploma or equivalent | <input checked="" type="checkbox"/> Related Bachelor's Degree |
| <input type="checkbox"/> 1-year related college/voc. training | <input type="checkbox"/> Related Master's degree |

Please specify the acceptable fields of study:

Acceptable: Computer science, information systems or a related field such as computer engineering technology.

Other education, training, certification, or licensing required (specify):

Oracle DBA experience, training, and/or certification, and programming using C/C++, SAS, Visual Basic, PowerBuilder, PL/SQL, SQL, SQL Plus, and Oracle Forms and Reports (version 10 or higher) are desirable.

Experience:

Check the one box indicating minimum work-related experience requirements for this position for a new employee the first day of work:

- | | |
|---|---|
| <input type="checkbox"/> No prior experience required | <input checked="" type="checkbox"/> 3 years |
| <input type="checkbox"/> 1 year | <input type="checkbox"/> 4 years |
| <input type="checkbox"/> 2 years | <input type="checkbox"/> 5 or more years |

Other specific experience (optional):

Alternative Qualifications:

This agency will accept alternative methods of obtaining necessary qualifications.

- ☐ Yes ☒ No

SECTION IV – Other Important Job Information

- | | |
|--|---|
| <input type="checkbox"/> Fingerprint check | <input type="checkbox"/> Valid driver's license |
| <input type="checkbox"/> Background check | <input type="checkbox"/> Other; Describe |

SECTION V – Signatures

Signature indicates this statement is accurate and complete.

Employee:

Name: _____ Title: _____

Signature: _____ Date: _____

Immediate Supervisor:

Name: _____ Title: _____

Signature: _____ Date: _____

Bureau Chief:

Name: _____ Title: _____

Signature: _____ Date: _____

Division/District Administrator:

Name: _____ Title: _____

Signature: _____ Date: _____

Department Designee:

Jennifer Jensen/Designee

Chief Human Resources Officer
Human Resources Division

Signature: _____ Date: _____